



Concussion Protocols: Diagnosis and Treatment

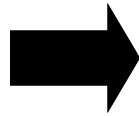
UPMC

University of Pittsburgh Medical Center

“UPMC’s multidisciplinary approach has been adopted by the CDC and is also being carried out at top-flight concussion centers including the Mayo Clinic, Cleveland Clinic, University of Pennsylvania , Jefferson University, Penn State University Hospital –Hershey Medical Center, Boston Children’s Hospital, Al Dupont Hospital for Children, Children’s Hospital of Philadelphia, Harvard, Dartmouth and elsewhere.”



Suspected Injury Occurs

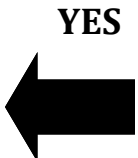


Multi-Step Evaluation

- 1. Thorough Vestibular Screen** (Saccades, VOR, Convergence)
- 2. ImPACT Post-Injury Testing** with certified interpretation
- 3. Symptom Assessment** - can be acquired from the ImPACT report.
- 4. Sideline Assessment** - gather information about the injury to pass on to the physician.

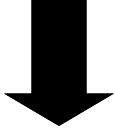


Concussion Confirmed?
Based on ImPACT Interpretation combined with vestibular exam, if the concussion is confirmed



No Work, School or Sports for 3-5 days with strict brain rest.

- 1. Mild Concussion** - follow up with PCP—Urgent Care
- 2. Moderate or Severe Concussion** - follow up with concussion trained physician. Patient can go to www.impacttest.com and click “Find a Provider (CIC)”
- 3. Repeat ImPACT Test** in 3-5 days with certified interpretation shared with PCP.



NO
See PCP for Clearance



Symptoms Persist
ImPACT Scores Abnormal
Vestibular Exam Abnormal

If ImPACT or Vestibular Exam are Abnormal or Symptoms Persist then reevaluate every 1-2 weeks until clear

- 1. Start 5 Stage Athletic Recovery +/- vestibular rehab**
- 2. Once scores and symptoms steady enough then develop the plan to return to school or work on a trial staged approach.**
- 3. Once completed UPMC 5 Stage and cleared vestibular exam, can plan return to sports and athletics**

Return to Work, School, Sports
As tolerated after cleared by health provider. Have a staged plan to return. (See page 2) If symptoms return with activity, then return for repeat vestibular and ImPACT testing.



If Symptoms Return

Cleared by Concussion Specialist





Academic - Professional Recovery



Athletic - Sports Recovery



Total Brain Rest Protocol No Work - No School

No reading, no computer, no texting, no travel, no crowded events, limited TV, limited telephone, walk everyday, lost of sports drinks. etc.

Medical Provider Writes RX for Physical Therapy

- Starts when medical provider feels that there is enough improvement in symptoms, vestibular exam and ImpACT scores
- Write for 5 State UPMC Concussion Athletic Recovery Program
 - If vestibular deficits exist—write for vestibular therapy as well.

Not Improved

Evaluate Weekly by a Medical Professional

- ImpACT Exam
- Vestibular Exam
- Discuss Symptoms

Stage 1: Very light aerobic, ROM, stretch, heart rate = 30-40% exertion, low level balance activities

If No Symptoms → Next Stage

Stage 2: Light to moderate aerobic, light weights, heart rate =40-60% exertion, moderate balance activity

If No Symptoms → Next Stage

Stage 3: Moderate-aggressive aerobic, free weights, heart rate =60-80% exertion, dynamic balance, jogging

If No Symptoms → Next Stage

Stage 4: Aggressive strength exercise, impact activities heart rate =80% exertion, sport specific training/ drills.

If No Symptoms → Next Stage

Stage 5: Resume full physical training activities with contact, heart rate = 100% exertion, rate =80% max., sport specific training/ drills
PT sends report to medical provider - 5 Stage Completed

Not Improved

Advance to School or Work Recheck every 1-2 weeks Repeat ImpACT and Vestibular Exam SCHOOL

- Start auditing classes only - no testing and homework optional. (can use half days) ok to go to nurse.

WORK

- Start back limited schedule
- Work from home—avoid commute
- Half days or every other day
- Half shifts or reduced work hours
- Limit computer work or reading

Improved

Advance More & check 1-2 weeks

- School - one test/day, extended time -> then advance computer and reading time
- Work - add commute -> increase hours and days -> advance computer and reading time.

Cleared by Certified Medical Provider Once:

- Tolerates full school/work activity.
- Completes 5 Stage and vestibular rehab.
- Vestibular exam in office has cleared.